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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,159	09/08/2005	Dirk Janssen	53182-317331	8314

25764   7590   03/20/2008
FAEGRE & BENSON LLP
PATENT DOCKETING
2200 WELLS FARGO CENTER
90 SOUTH SEVENTH STREET
MINNEAPOLIS, MN 55402-3901

EXAMINER
JUNG, MIN

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
03/20/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 April 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>11-23</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>11-23</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

2.   Claims rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

In claims 11 and 18, the last two lines, respectively, it is not clear if the phrase

means that a non-real-time data is transmitted in place of a real-time data.

In claims 12 and 19, lines 2-3, it is not clear what is meant by "real-time

applications in its entirety"; does it mean that all of the real-time data ready for

transmission is transmitted?

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the
> United States before the invention thereof by the applicant for patent, or on an international application
> by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this
> title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4.   Claims 11-15, and 18-22 are rejected under 35 U.S.C. 102(e) as being

anticipated by Huang et al., US 6,483,846 (Huang).

Huang discloses a real-time Ethernet that provides deterministic communication

services over the conventional Ethernet network.

Regarding claims 11 and 18, Huang teaches a method for transmitting data for

real-time applications and non-real-time applications in a communications network with

several nodes that are connected to one another via communication paths, wherein the

data transmission takes place in a cyclic and deterministic fashion and data for real-time

applications has priority over other data such that all data for real-time applications is

transmitted first during a transmission cycle and data for non-real-time application is

subsequently transmitted in the time that remains until the next transmission cycle starts

(Huang teaches a real-time queue 152 and a non-real-time queue 154 at col. 5, lines

15-33, and ensuring a sufficient bandwidth for high priority real time traffic, Col. 5, lines

34-40 and 56-62), the method comprising the steps of : transmitting, receiving and

processing data for real-time applications and data for non-real-time applications in

parallel during a real-time cycle by : executing a first processing step wherein, in a real-

time cycle, the data received in a previous real-time cycle is analyzed to determine

which received data are intended for real-time applications and which data are intended

for non-real-time applications (the separate queues 152 and 154 for the real-time data

and non-real-time data shows that the data was analyzed to put into the right queue);

executing a second processing step including executing the real-time applications

(scheduling a real-time data to be transmitted, col. 9, lines 26-36, and throughout the

specification); and executing a third processing step including the transmission of the

data to be transmitted for real-time applications during a transmission cycle (col. 9, lines

37-48).

Regarding claims 12 and 19, Huang teaches calculating the time remaining until

the next transmission cycle starts, in order to subsequently transmit data for non-real-

time applications in the remaining time (See the Equation 1 and 2, col. 10, lines 25-50).

Regarding claims 13 and 20, Huang teaches storing the data packet in the

interim, and transmitting the data packet during the next transmission cycle, when the

time remaining after the transmission of data for real-time applications exceeds the

transmission time required to transmit a data packet for real-time applications (non-real-

time queue 154; Huang's teaching forces the system to operate this way since real-time

data is given as much time as needed, see col. 5, lines 56-52).

Regarding claims 14, 15, 21, and 22, Huang teaches that data received for non-

real-time application is processed independently of data received for real-time

application (real-time data is put in to a separate queue from the non-real-time data, and

therefore, is processed independently, see Fig. 2A).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 16, 17, and 23 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Huang.

Huang, while teaching real-time cycle resulting from partitioning the Ethernet

bandwidth, fails to specifically teach that the transmission cycle is delayed relative to the

reception cycle by a constant period of time that corresponds to the period of time for

the first and the second processing step, and that the reception cycle is started

simultaneously with or shortly after the start of the real-time cycle. Huang's teaching of

deterministic scheduling by utilizing bandwidth partitioned into a repetitive cycle for the

transmission and reception of real-time data and non-real-time data covers the concept

of the present invention. The design aspect of how much delay is provided between the

transmission cycle and the reception cycle would be an obvious design choice which

can be easily adopted or modified by a skilled artisan. Therefore, it would have been

obvious for one of ordinary skill in the art at the time of the invention to implement the

teaching of Huang by specifying the delay amount between the transmission cycle and

the reception cycle as needed for optimum performance of the system.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. The Latimer, Jr. patent, the Doucette et al. patent, the Keenan et

al. patent, and the Gummalla et al. patent are cited for further references.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Min Jung whose telephone number is 571-272-3127.

The examiner can normally be reached on Monday through Friday 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Lynn Feild can be reached on 571-272-2092. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Min Jung/
Primary Examiner, Art Unit 2616